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ABSTRACT

In the new economy, Americans need a strong foundation of basic skills and education to succeed in their adult roles as workers, family members, and citizens. Analysts estimate over 20 percent of Americans lack the foundation of basic skills and education they need. One way to understand how basic skills lead to success in the 21st century is to look at the demand for them in work, family, and community settings. In work, the need to apply basic skills to changing situations requires a higher level of fluency, speed, and accuracy. Changes in family life require adults to use their literacy and math skills to acquire information and build a base of knowledge for decisions about health care, finances, and retirement. In the community, Americans need strong basic skills to exercise their rights and participate fully as citizens. Services are provided to adults through basic skills, family literacy, English as a second language (ESL) and general educational development (GED) programs coordinated under the Workforce Investment Act. Three priorities to expand and improve services are to increase resources, increase access, and improve instruction. A publication that summarizes discussions that took place at the 2000 National Literacy Summit, "From the Margins to the Mainstream," could provide a blueprint for the federal government for investing in the adult education and literacy system. (Contains 27 references.) (YLB)

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Building a Level Playing Field

John Comings • Stephen Reder • Andrew Sum

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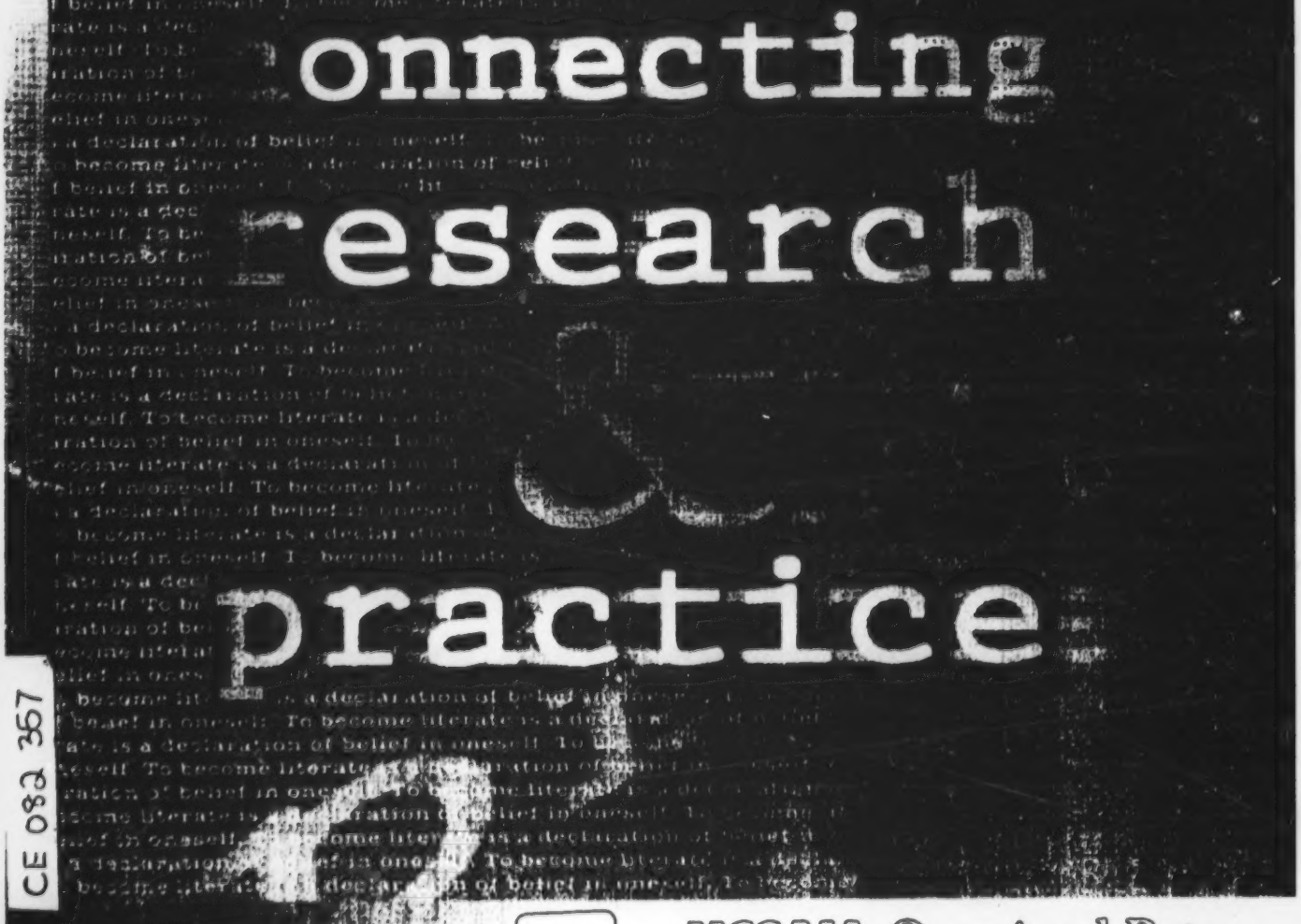

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NCSALL Occasional Paper

BUILDING A LEVEL PLAYING FIELD

The Need to Expand and Improve the National and State Adult Education and Literacy Systems

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BUILDING A LEVEL PLAYING FIELD

As the 21st century begins, the citizens of the United States find themselves living and working in a new economy—one built on a foundation of information and communications technology. This new economy provides advantages to people who possess both educational credentials and strong basic skills.[1] Those basic skills include reading, writing, math, the ability to speak English, and a range of additional skills, such as the ability to think critically, to work in collaborative problem-solving groups, and to use computers and other technology tools. In this new economy, a high school diploma, by itself, less often leads to a career with a good future (Sum, Fogg, & Mangum, 2001). At least two years of postsecondary education or its equivalent in vocational training is becoming the minimum qualification for jobs that pay a living wage, provide basic benefits, and offer a chance for advancement. Adults who possess sufficient skills and education are prepared to take advantage of the opportunities offered by the new economy.

The tasks involved in managing individual and family lives have also become more demanding. Dealing effectively with insurance policies, securing and handling health information and benefits, managing credit, and planning for retirement require well-developed reading, writing, and math skills and a basic foundation of knowledge about these matters. In addition, schools are setting the bar higher for children. Although improvements in schools will help them meet these new demands, children will also need the support of educated parents.

The rights and responsibilities of citizenship in communities, states, and the nation are now more demanding as well. Every citizen should understand the basic principles that underlie threats to the environment, trends in our global economy, and possible effects of changes in tax, welfare, education, and other social policies. As communities become part of an interdependent world, every citizen needs to be prepared to play a role in participating in local political and civic arenas and in maintaining and improving the quality of life in our country.

The changes taking place over the next century will require all adults to continue learning throughout their lives. They will be learning on the job, at home, and in both traditional formal settings and new informal ways, some of which have yet to be invented.

[1] This document will use the term "basic skills" to mean both cognitive skills, such as reading, and the knowledge, such as vocabulary, needed to use that skill.

As these changes offer immense new possibilities, the playing field is much bigger and more complex than before. It is, however, a level playing field only for those who have a good education and the strong basic skills people need to succeed in their adult roles as workers, family members, and citizens in the new economy. People who do not possess high levels of these skills will find it difficult to keep up with the new demand for continuous lifelong learning. If all adults in the United States are to have an opportunity to reach their full potential, access to an education that provides a strong foundation for further learning must be available not only to children but to adults as well.

How Many Americans Lack the Foundation of Basic Skills and Education They Need?

This report estimates and describes the portion of the adult population that does not have the basic skills and education needed to succeed in the 21st century. Its analysis builds on work reported in *New Skills for a New Economy* (Comings, Sum, & Uvin, 2001), which focused only on the state of Massachusetts. It applies the formula developed for *New Skills for a New Economy* to the entire country as well as to individual states for which the needed data are readily available.

This report looks at the national workforce of adults between the ages of 18 and 64 who are neither studying full-time nor institutionalized. Although some adults who are younger and older than this are active in the workforce, more than 90 percent of all workers are between the ages of 18 and 64. The analysis undertaken in *New Skills for a New Economy* found that these workers fall into three categories, each representing a different educational challenge: limited ability to speak English, lack of a high school credential, and insufficient skills for the modern workplace. Although some adults may face two or even all three challenges, this analysis puts them in the challenge that presents the most immediate barrier to success and eliminates any overlap among categories.

- **The language challenge** group includes immigrants who have limited English speaking skills. Some of these adults are in the workforce and some are not, but all might be interested in working if they had sufficient English skills.

- **The educational credential challenge** group includes native-born and immigrant adults who speak English proficiently but who dropped out of school before achieving a high school credential. Some of these adults are in the workforce and some are not, but all might be interested in working if they had high school credentials and could, through employment and further education, begin a career that would eventually provide good pay and benefits.

- **The new literacy challenge** group includes adults who speak English proficiently and have a high school credential but whose basic skills are generally considered insufficient for the modern workplace. All of these adults are employed either full-time or part-time, or they are unemployed but actively looking for work. Such workers could compete for good jobs 15 years ago, but now the new economy demands a higher level of basic skills for these same jobs.

The number of working-age adults in the United States in each challenge category during 1992 was estimated directly from the household sample of the 1992 National Adult Literacy Survey (NALS) public-use data set. The following chart (Figure 1) estimates the number of adults in the United States who fall into the three categories.

Figure 1: 1992 National Estimate for All Three Challenges

	Language	Credential	New Literacy	Total
Number of U.S. Adults (18–64)	6,466,383	23,247,930	34,288,383	64,002,696
Percent of total U.S. Adults (18–64)	4.7%	17.0%	20.1%	41.8%

Similar data are available for 13 states. Eleven of these states participated in the 1992 State Adult Literacy Survey (SALS). These states provided funding to the National Adult Literacy Survey (NALS) to increase their sample population. These larger samples allow for reliable state-level estimates of the three challenge populations in each state. In addition, Oregon undertook its own parallel NALS-compatible literacy survey in 1991. It did not, however, include the same self-report question about English language proficiency, so other language-related questions were used to estimate the challenge populations for Oregon. Had Oregon collected its data in the same way that the SALS states did, the language challenge population would probably be lower, and the other two challenge populations would probably be higher. Data for Massachusetts were drawn from the *New Skills for a New Economy* report. The following chart (Figure 2) presents the 13 state-level estimates.

Figure 2: State Estimates for All Three Challenges, Number of 18–64 Year Old Adults in the Challenge, and Percent of the Total State 18–64 Population

	Language	Credential	New Literacy	Total
California	2,224,026 13.1%	2,006,628 11.8%	3,655,402 18.1%	7,886,056 43.1%
Illinois	294,441 4.8%	1,011,691 16.3%	1,499,022 19.5%	2,805,154 40.6%
Indiana	21,318 0.7%	582,576 19.4%	668,784 17.8%	1,272,678 37.9%
Iowa	15,200 1.0%	188,845 12.6%	309,965 16.5%	514,010 30.1%
Louisiana	65,511 2.8%	728,114 31.2%	644,385 21.6%	1,438,010 55.6%
Massachusetts	195,000 6.0%	280,000 8.8%	677,000 21.2%	1,152,000 36.0%
New Jersey	269,971 6.3%	684,074 16.0%	1,090,408 19.7%	2,044,453 42.0%
New York	873,147 8.7%	1,582,331 15.8%	2,784,248 21.5%	5,239,726 46.0%
Ohio	31,109 0.5%	1,042,066 17.8%	1,429,895 20.2%	2,692,673 38.5%
Oregon	207,188 13.2%	147,845 9.4 %	70,375 4.5%	425,408 27.1%
Pennsylvania	83,148 1.3%	883,570 14.1%	1,725,955 21.2%	2,692,673 36.6%
Texas	908,173 9.6%	1,554,754 16.4%	2,496,395 22.2%	4,959,286 48.2%
Washington	80,273 2.8%	324,108 11.1%	536,634 15.7%	941,015 29.6%

Figure 2 demonstrates that each state has a considerable problem, although the relative size of each challenge population varies from one state to another. At the low end, in Oregon, Washington, and Iowa,[2] 30 percent or less of the population age 18–64 faces one or more of these challenges, whereas in Texas and Louisiana, about half or more of the population faces a challenge. The distribution of the population facing the various challenges varies widely from state to state as well. In Oregon, for example, where literacy skills are known to be high,[3] less than 5 percent of the population age 18–64 faces a new literacy challenge, whereas in most of the other states in the table, the comparable percentage is 20 percent or higher.

These figures are based on data now nearly a decade old. A study undertaken as part of the preparation for the 2002 replication of the NALS suggests that the population with the language challenge will probably remain roughly the same size, whereas the population with the educational credential challenge will probably decrease slightly, and the population with the new literacy challenge will probably increase (Reder & Edmonston, 2000). These estimates, however, were made before 2000 Census data were available.

The preliminary U.S. Census Bureau estimate of the nation's population is 281,400,000, nearly seven million larger than the estimates made immediately prior to the 2000 Census.[4] Most of these seven million additional people are probably undocumented immigrants. If these estimates prove to be accurate, the population with the language challenge may be markedly larger in 2000 than it was in 1990.

An analysis of the March 2000 Current Population Survey (CPS) data on the educational attainment of the immigrant population over the age of 16 reveals that 36 percent of new immigrants arrive without a high school diploma or General Educational Development (GED) certificate.[5] As immigrants who do not have a high school diploma learn to speak English well, they will move from the language challenge into the educational credential challenge. In addition, many states are instituting high school graduation tests that may increase the number of students who

[2] In 1992, the percentage of the population over the age of 60 was higher in these states than in all but two other states, Florida and Pennsylvania. At the time, older adults were less likely than younger adults to hold a high school diploma, and NALS found that literacy skill level was inversely related to age.

[3] Stephen Reder discusses this more fully in an *Overview of the Longitudinal Study of Adult Learning*, a paper presented at the Annual Meeting of the American Educational Research Association, Seattle, April 2001.

[4] The U.S. Census Bureau has increased its estimate of the undocumented immigrant population to nine million.

[5] All high school students ages 16–24 are excluded from the educational count totals.

do not graduate. These requirements may add more high school dropouts to the population of adults facing the educational credential challenge.

In determining how many workers fall into the new literacy challenge category, *New Skills for a New Economy* drew from the 1992 NALS (Kirsch, et al., 1994), with additional data from the 1990 Census of Population and Housing and the monthly CPS of the late 1990s. NALS tested 26,000 Americans who were 16 years of age and older. The participants were randomly selected to represent the adult population in the country as a whole, and then additions were made to the sample to provide enough data for specific states and for the prison population (1,100 inmates in 80 federal and state prisons). In a one-hour session, each participant was tested for reading and math skills using materials that simulated the literacy demands of everyday life and interviewed about demographic, employment, education, and other characteristics.

The assessment involved three scales. The first measured prose literacy, which included the knowledge and skills needed to locate and use information contained in text such as editorials, news stories, poems, and fiction. The second measured document literacy, which included the knowledge and skills needed to locate and use information contained in documents such as job applications, payroll forms, transportation schedules, maps, tables, and graphs. The third was quantitative literacy, which included the knowledge and skills needed to apply arithmetic operations to tasks such as balancing a checkbook, computing a tip, completing an order form, or determining the amount of interest from a loan advertisement.

NALS measured these literacy and math skills on a continuous 0 to 500 point scale and then reported its findings in terms of five levels, Level 1 (lowest proficiency) to Level 5 (highest proficiency). Each level represents a range of skills. At the bottom of Level 1 are those who have almost no skill in literacy and math, while at the top of Level 5 are people who could manage almost any reading or math task. Only people who scored in the lowest range of Level 1 are illiterate in the sense that they cannot read at all. Most people performing at Level 1 can locate a single piece of information in a short and simple piece of text, but they have trouble with tasks requiring them to locate information in longer, moderately complicated text. They can solve simple math problems when the numbers and the operations are provided, but adults at Level 1 find it difficult to solve the same problems when they must locate the numbers and the operations in a piece of text. Those adults who scored at Level 2 can locate information in moderately complicated text and solve simple math problems when the numbers and operations must be found in a piece of text. Even though most would not qualify as illiterate, adults in Level 1 are at a severe

disadvantage, and those in Level 2 are disadvantaged, in relation to the demands of 21st century life.

Adults who scored in NALS Level 3 were able to locate several relevant pieces of information in complicated and lengthy text and solve problems that required locating several numbers in a text and determining which operation to use. Examples of Level 3 tasks are using a flight schedule to plan travel arrangements for a meeting, writing a brief letter explaining an error made on a credit card bill, and identifying information from a bar graph that depicts sources of energy and years of production.

NALS Level 3 tasks are becoming common for workers in the new economy, and most people performing at Levels 1 and 2 usually cannot accomplish these tasks or find it difficult to consistently complete them correctly. These are also the kinds of tasks required by most postsecondary education and training programs. In fact, NALS found that only 17 percent of degree-seeking postsecondary students scored in Levels 1 and 2. NALS Level 3 is becoming broadly recognized as a minimum performance standard for jobs that pay a good salary and benefits. It includes the skills that employers expect college graduates to have, and both the National Governors' Association and the National Educational Goals Panel have identified NALS Level 3 as the minimum standard for the 21st century.

Like most standardized tests and national surveys, NALS has received criticism. Some of the critics suggest that the way in which the NALS data were analyzed placed too many people in Levels 1 and 2. The basis for this argument is that some people in NALS Level 2, for example, were able to accomplish some but not all of the NALS Level 3 tasks. The other argument is that NALS used tasks (balancing a checkbook, for example) that might be unfamiliar to some people (in the preceding example, those who do not have checking accounts). People who have never had a checking account might have been able to answer a question that used the same math had the task been something they do all the time, possibly a similar task that takes place in their work.

These criticisms do not undermine the findings presented here because this report is focused on the demands of the new economy. The kinds of tasks used in the NALS are similar to those demanded in the 21st century workplace. In addition, the new economy needs workers who are able to apply these skills with accuracy and speed and in diverse settings.

The 2002 replication of the NALS will soon provide an indication of whether the population with the new literacy challenge has increased or decreased.[6] Once data from the 2000 Census and the 2002 replication of the NALS are available, the nation will have a reliable estimate of the number of people with the three challenges. The existing trends suggest that the total population that could benefit from services will be larger in 2000 than it was in 1990, and that this will, in large part, be the result of immigration.

Official estimates of the immigrant population, based on the national March 2000 CPS survey, reveal that 11,565,000 foreign-born persons residing in the United States at that time had migrated to the country some time between 1990 and March 2000.[7] These immigrants represent 45 percent of the estimated net increase in the nation's population between April 1990 and March 2000. Including the children born in the United States to immigrant women during the 1990s gives immigrant and first-generation Americans a 70 percent share of the population increase. As Steven Camorata remarked in a recent paper on national immigration developments for the Center for Immigration Studies, "Immigration has become the determinate factor in population growth" (Camorata, 2001). The United States may now be dependent on immigration for future increases in the size of its workforce.

The 64 million working-age adults who fall into the estimate of the three challenge populations are not a problem; they are a national resource. The 6.5 million working age adults who fall into the language challenge category represent a resource that, after they improve their English skills, could provide the growing workforce our country needs. The 23 million working-age adults who fall into the educational credential challenge category are a resource that, after they complete a GED, could gain the postsecondary education and training needed to fill the new economy jobs being developed by advancing technology. The 34 million workers who fall into the new literacy challenge category represent a resource that, after they improve their basic skills, could help their employers better compete in the new economy.

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[6] Individual states should invest in enhancing the sample sizes of their data within the 2002 national assessment of adult literacy so that the sizes, demographic characteristics, and trends of their challenge populations are clearly established.

[7] The population estimates include as foreign born those individuals who were born in the American Virgin Islands, Puerto Rico, Guam, or one of the other outlying territories of the United States. While immigrants from these areas are U.S. citizens, their entry into the United States increases the size of the resident population of the country.

Why are Basic Skills Important?

The increasing complexity of 21st century life places a burden on everyone (Kegan, 1994). Confronting each new problem or opportunity, people depend on the set of basic skills they have acquired over a lifetime. These basic skills provide a foundation for addressing almost every problem and opportunity, and each era in the country's history has required a different set. At one time, the important basic skills were defined by a life based on agriculture. In the 20th century, basic skills were defined by industrial and commercial institutions. In the 21st century, the necessary basic skills allow people to take advantage of new information and communications technology. One way to understand how basic skills lead to success in the 21st century is to look at the demands for them in work, family, and community settings.[8]

Basic Skills and Work

Case studies of two adults, Joseph and Richard, who were interviewed and tested in adult literacy classes in the Boston area in 1994, provide examples of how changes in the economy are affecting workers (Snow & Strucker, 2000). Both men had extremely limited reading skills and were members of minority ethnic groups. The significant difference between the two was age.

Joseph was 59 and had worked in auto factories from the 1950s through the 1980s. At that time, the managers of auto factories did not expect entry-level workers to have a high school diploma. Joseph rose to supervisory positions because he worked hard and had excellent interpersonal skills. First-level supervision in manufacturing did not require high-level literacy skills, and Joseph found ways to get help with the tasks that required skills he did not have. Joseph was rewarded for his knowledge about how to use and maintain the equipment in the auto factory, ability to teach new employees how to do their jobs, and skill in managing the workers on his team. Though Joseph's life was not always easy, he earned a good living.

Richard was 24. His test scores were slightly better than Joseph's, but his job history was quite different. Richard left school at 17 and had a series of low-paying jobs as a dishwasher, security guard, and clothing salesperson. The better jobs that Richard wanted to apply for required a high school diploma. To move up within the jobs he had held required basic literacy and math skills: filling out forms, reading

[8] Research into the relationship between basic skills and success in these three aspects of modern life is hampered by the close link between educational attainment and many other aspects of people's lives. This makes it difficult to say conclusively that basic skills are the factor supporting success, and the positive impact of basic skills is often constrained or enhanced by other factors such as family income, gender, race, and the state of the economy.

graphs, using computers, recording orders, and responding to correspondence. Richard neither could find the entry-level job that would set him on a lifelong career nor move up in a company when he did find work. Richard's future was not as bright as Joseph's was at age 24.

These two men were similar in many ways, but the world of work had changed. Of course, many factors could explain the difference in the earning histories of these two men, but stories like these are familiar to the people who work in the field of adult basic education. Adults who are now in their 50s and 60s entered the workforce at a time when workers with low basic skills and no high school diploma could find well-paid jobs in manufacturing and keep those jobs until they retired. Jobs in the same industries now require workers to read computer screens and enter data into information systems. As workers may change employers many times during their career as they seek better opportunities, they must have strong basic skills that can be applied to each new position.

Massachusetts provides another dramatic example of this transformation of work in the changes that took place at Malden Mills, which produces Polartec™ fabric, after its plant was destroyed by fire. Workers say that, before the fire, they could feel the cloth coming out of the machines, listen to the sounds of the equipment, and then make needed changes in settings that controlled the production process. The new equipment installed after the fire must be operated through computer screens.[9]

The reading, writing, and math skills these workers need to do their jobs are not elaborate or difficult. They involve reading directions in manuals and data on computer screens, writing notes on actions taken and problems identified, and performing simple calculations. However, workers must be able to apply these skills in situations that change often. The need to apply basic skills to changing situations does not always require more skills, but it does require a higher level of fluency, speed, and accuracy.

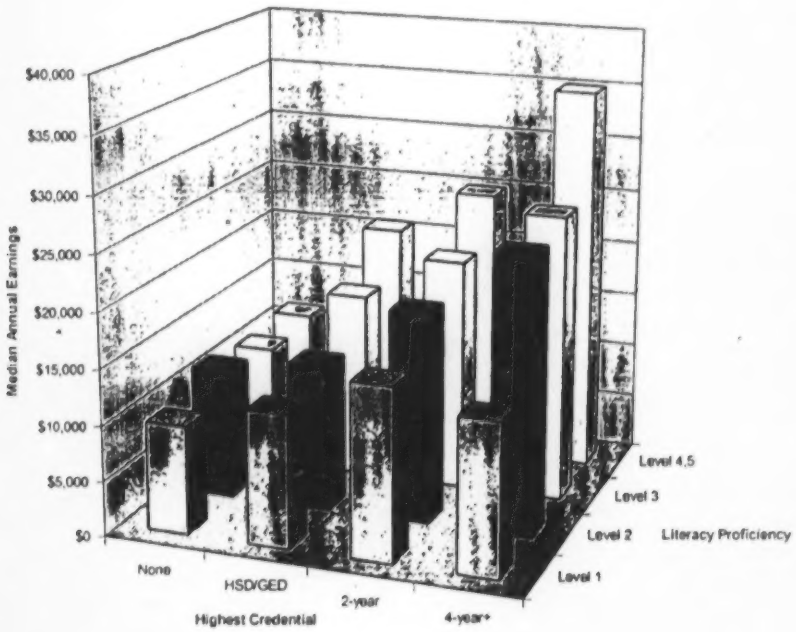
Malden Mills provides a clear example of why basic skills are becoming more important. In many industries, literacy and math skills are being used with computers to accomplish tasks that workers used to do with expertise they had built up over years. Workers used to be artisans who learned their trade through a form of apprenticeship. Now, the workplace needs technicians who apply a general set of skills to many different and changing tasks.

[9] Conversation with Johan Uvin, who directed the workplace education project at Malden Mills, April 1999.

Most workers are now employed by the service sector in jobs also demanding higher skill levels. A study of the banking industry (Autor, Levy, & Murnane, 2000) provides an example of how low-skill jobs are disappearing. Banks used to hire high school graduates to operate their filing systems. These workers would file checks and reports into client account files and then retrieve them when needed. Now, all these documents are filed directly into computer storage or fed into computers through optical readers. Banks need higher-skilled workers who can operate and maintain the computer equipment and use the files to provide information over the phone to clients.

Literacy in the Labor Force (Sum, 1999), a recent publication of the U.S. Department of Education, indicates a strong relationship between income and literacy and math skill. Using data from the 1992 NALS, the study found that as literacy skill level increased from NALS Level 1 to Level 5, so did earnings—even within groups of people who had the same educational credentials. These relationships are illustrated in Figure 3, where median annual earnings are shown (as the height of each bar) as a joint function of both educational attainment and functional literacy skills (Reder, 2000). As the figure shows, at every level of education, annual earnings increase as literacy level increases. To reach levels of income adequate for viable family support, individuals need to obtain both educational credentials and high levels of skill—in other words, meet the three challenges facing more than 40 percent of the U.S. workforce.

Figure 3: Annual Income by Education and NALS Level



Recent research on literacy and oral communications sheds some light on why higher levels of basic skills might lead to success in jobs that do not appear to demand these skills (Purcell-Gates, 1995; LeVine, et al., 1994; Dexter, et al., 1998). This research appears to show that oral language skills change in relation to literacy skill level. When speaking, people with higher levels of literacy provide more of the details that a listener needs to fully understand a complicated situation. This form of oral language is characterized by the use of broader category names (using furniture when talking about chairs and tables, for example) and abstract vocabulary, which provides the more precise information that a listener might need to understand a situation that cannot be experienced directly.

Modern workplaces require this form of speech. In traditional manufacturing, workers are immersed for years in the same context. They develop a language that might be incomprehensible if it were transcribed and shared. Now, workers are immersed in a context that is constantly changing, and this requires more complicated oral communication, discussion, and group problem solving. The oral

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discourse in the workplace is becoming more like the oral discourse in school, a discourse that is modeled on writing.

Twenty years ago, basic skills were limited to reading, writing, math, and fluency in the English language, but now new skills are being added to this list. In the early 1990s, the reports of the U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) (1991, 1992) identified the kinds of skills high school graduates need to enter high-skill, high-pay employment. The SCANS reports argue that several new basic competencies, such as the ability to process information or understand a system, are now essential entry-level skills for employment. The SCANS reports place these competencies alongside a set of foundation skills, which include traditional academic skills, critical thinking, and several personal qualities. The two lists taken together form that part of a complete basic education that will prepare a high school student, or an adult returning to school, for the modern workplace.

In *Teaching the New Basic Skills* (Murnane & Levy, 1996), Harvard's Richard Murnane and MIT's Frank Levy draw on the work of SCANS and present a list, based on research in highly productive businesses, of what they call the "new basic skills." Their list describes the minimum skills needed to secure a middle-class job in the United States today. They are the abilities to:

- Read at the ninth-grade level or higher.
- Use math at the ninth-grade level or higher.
- Solve semistructured problems when hypotheses must be formed and tested.
- Work in groups with coworkers from different backgrounds.
- Communicate effectively, both orally and in writing.
- Use personal computers to carry out simple tasks, such as word processing.

Ninth-grade level is probably equivalent to the lower end of NALS Level 3. Murnane and Levy found that employers now view a college degree as an indication that an applicant has sufficient basic skills. Though literacy and math still form the core of a basic skills curriculum, they are no longer sufficient. Over the next few decades, the list of basic skills will grow longer and the level of each skill that qualifies as "basic" will increase.

At one time, mastering a set of mechanical skills could insure a lifetime of employment and even a place for a son or daughter within the same workplace, but that possibility has become rare in a world of increasing complexity, competitiveness, and market change. Most of the jobs that pay a living wage, provide benefits, and have a chance of lasting require the use of high levels of reading, writing, and math skills. Work is changing to require the use of these skills more often and at higher levels of complexity, speed, and accuracy. The oral language skill needed in these workplaces requires the vocabulary and communication skills that grow with reading and writing practice. In addition, workers must have the ability to learn quickly to deal with their constantly changing jobs. As we proceed through the 21st century, good jobs will require higher and higher levels of basic skills, a wider range of skills, and a stronger foundation of knowledge that draws from all of the academic domains.

Basic Skills and Family Life

Everyday living is becoming more complicated as well. Thirty years ago, most people used cash and checks, but now most have credit cards. The credit cards allow them to spend money they do not have, but this convenience requires constant monitoring of account balances and interest payments. They need to apply reading and math skills to choose the best credit card and then to manage its use. Thirty years ago, workers had no choices in retirement plans, but now many people must choose how to invest their employer's and their own retirement contributions. These decisions require literacy and math skills to acquire information and weigh alternatives. Health care now requires high levels of language and literacy skills to understand the rules of an HMO.

These changes require adults to use their literacy and math skills to acquire information and build a base of knowledge for decisions about health care, finances, and retirement. The Internet is a powerful tool for acquiring this information, but good literacy skills are a requirement for using it, and most of the information relevant to life in the United States is available only in English. No one has studied the basic skills needed in daily life, so there is no list similar to the one developed by Murnane and Levy. However, the skills needed for managing daily life are probably quite similar to those needed for work. As in work, there is a need to apply a set of basic language, literacy, and math skills to many different and changing situations.

An example of this situation can be found in today's complicated health system. A recent review of the research literature on the relationship between basic skills and health, conducted by Rima Rudd of Harvard's School of Public Health, points out that educational attainment is a strong predictor of good health

(Rudd, 1999). The research reviewed suggests that this relationship exists because education increases income, supports healthy lifestyles, increases problem-solving abilities, and changes values in ways that support good health. More directly, literacy influences access to crucial information about health and specific treatments. The research also points out that literacy plays an important role in the management of chronic diseases, such as asthma and diabetes, that require a complicated regimen of medication, diet, and exercise for good management. Finally, the research notes that high levels of literacy skill are needed to navigate the increasingly complex health care system, which requires active patient management of their health care. Health care is becoming more complicated, but it is also becoming more effective. High levels of basic skills help people take advantage of the advances that medicine is making.

Another example is found in retirement. Thirty years ago, a worker in a large company put in 30 or 40 years of work and then retired with a company pension and Social Security benefits. Now, workers must manage their own pension investments, and they may soon be asked to manage part of their Social Security funds as well. If individuals or couples understand how the nation's economic system works and how to use the information about investments that is freely available in print, on TV, and over the Internet, they can use small weekly investments to build wealth. These changes offer workers the opportunity to take more control over their lives, to insure that their pensions will always be there even if their company disappears, and to decide to leave some of their accumulated pension wealth to their children. To take full advantage of these changes, adults need high levels of language, literacy, and math skills to understand their choices and monitor the performance of their investments.

Just as work has become more demanding, so has school. Children must work harder in school now not only to pass the higher standards for graduation but also to prepare themselves for 21st century life. A child's chance for success in school is greatly affected by the education level, literacy skill level, attitude toward learning, and economic stability of her or his parents. The NALS found a strong relationship between parents' education and the literacy skill level demonstrated by their children in adulthood. More than 50 percent of adults whose parents had not completed high school scored in NALS Level 1 or Level 2, and 40 percent of adults whose parents had stopped their education after completing high school scored in NALS Level 1 or Level 2. In contrast, less than 27 percent of adults whose parents had gone on to some postsecondary education or training scored in NALS Level 1 or Level 2 (Organization for Economic Co-operation and Development Statistics Canada, 1995).

The recent report of the National Research Council, *Preventing Reading Difficulties in Young Children* (Snow, Burns, & Griffin, 1998), points out that success in learning to read in school is related to the preparation and support provided by parents before children enter school and while they are students in the first three grades. A U.S. Department of Education study (National Center for Education Statistics, 1999) looked at six specific home literacy activities that mothers could do to prepare preschool children to learn to read in school. These activities included reading to children, telling stories, teaching letters, words, and numbers, teaching songs or music, doing arts and crafts, and visiting a library. The study found that higher levels of education among mothers was related to a greater likelihood that 3–5 year old children had participated in these activities. For example, 61 percent of mothers who did not have a high school degree had read to their children, 85 percent of mothers with some college education after completing high school had read to their children, and 91 percent of mothers with a college degree had read to their children.

Michigan State University Professor Victoria Purcell-Gate's book, *Other People's Words* (1995), presented a case study of a family of four in which a school-age child was struggling to learn to read. Neither the child's mother nor his father used reading and writing in their daily lives, and the boy never saw these skills used in his home. Both parents were intelligent, but they never developed good reading skills. The father was interested in history and nature, and watched TV and videotapes on these two topics, but he never read about them. The child in this family lived in a culture that did not include literacy, and when he entered school, he was unfamiliar with reading.

At the opposite end of the spectrum, reading expert Denny Taylor studied children in families in which literacy was an important and pervasive element in their culture (Taylor, 1985). The children who grew up in these highly literate homes developed complex linguistic skills and extensive vocabularies early. Their parents demanded more detail from them when they answered questions, and these children were hearing complex vocabulary in their everyday lives. Children in these families learned to read and write as a natural part of their lives, and they viewed literacy as important and interesting. For them, reading and writing are just other ways of communicating, and school is a familiar and friendly environment.

University of Toronto's Keith Stanovich calls the cumulative effect of a weak foundation for literacy acquisition the "Matthew effect," which comes from the discussion of "the rich get richer and the poor get poorer" in the New Testament book of Matthew (Stanovich, 1986). Stanovich suggests that children who do not read well or who do not easily acquire information from print increasingly fall further and

further behind their more literate peers as they grow older because schools—and society—expect them to master large domains of knowledge through reading. What may start out as a mere difficulty in learning to read can snowball into a lack of mastery of a wide range of material.

If children come into school unprepared to learn, they may have trouble developing the basic skills of reading. As the children who are prepared move forward, the less prepared are always a step behind. If children also have a learning disability, they are even more disadvantaged. As they pass through the first and second grade, underperforming children may become frustrated with their lack of progress in relation to the rest of the class. For them, reading is less enjoyable, leading them to read less. Their better-prepared classmates read more and become fluent readers. These differences may be small in kindergarten, but by fourth grade, the cumulative effect can lead one child to succeed and another to fail. For children who have learning disabilities, this cumulative effect can be even greater as each step in the process is more difficult for them than for others in their class.

Underperforming children are put in reading groups that use books with simpler vocabulary and content than the children who are reading in advanced groups. Over several years, children who are reading at lower levels miss learning vocabulary and background knowledge important to reading more difficult material. Of course, the Matthew effect works in the opposite direction. Children who do well in the early grades continue to do well and eventually acquire the postsecondary education needed to be successful.

Parents must take on the role of helping their children acquire strong basic skills early in school, but many are unprepared to do this. Parents who did not do well in school should be provided with an opportunity to learn how to help their children do better than they did. Although many parents overcome their own low literacy skills and help their children succeed in school (Bingman, Ebert, & Smith, 1999), adult basic education classes can provide an opportunity for parents who are struggling to help their children succeed.

Every aspect of family life is becoming more complicated, but this complexity offers advantages as well. Health care is more complicated than it was 30 years ago, but it is also more effective. Retirement planning is now more complicated, but it also offers a chance to build family wealth and provide a more secure retirement. Schools are demanding higher performance, but those higher standards will benefit students for their whole lives. As adults must take on new responsibilities in important parts of everyday life, many of them need an opportunity to develop the basic skills required to manage their new, more complicated lives.

Basic Skills and Community

The success and civic vitality of communities depend on the level of basic skills of the people who live in them. More than ever, citizens need strong basic skills to understand school issues, laws and codes, zoning regulations, proposed legislation, and the platforms and qualifications of political candidates. They need to know how to gain access to administrators, policymakers, and police, to unite and advocate for change, to inform one another, to negotiate among themselves and with those in power, to use the power of their votes, and to seek and hold positions of power themselves. They must be able to understand and use the media to support community goals.

Little research has been done on the relationship between literacy skill level and issues of citizenship and community participation. One of the few relationships was identified in the initial analysis of NALS data. NALS found that people with higher levels of literacy were more likely to vote. Only 55 percent of NALS Level 1 and 61 percent of NALS Level 2 adults had voted in a national or state election in the past five years (Kaplan & Venezky, 1994). On the other hand, 69 percent of NALS Level 3, 80 percent of NALS Level 4, and 88 percent of NALS Level 5 adults had voted in an election in the last five years. NALS also found that participation in community organizations was related to literacy level. Adults who scored in Levels 3, 4, and 5 were almost twice as likely as those who scored in NALS Levels 1 and 2 to participate in the activities of community organizations at least once a month.

The successful dissemination of public health, safety, and environmental information depends, in part, on the ability of adults to read. Information on these issues is growing more technically sophisticated. The effects of ingesting lead paint, the safety of household products, the risks of radon in our homes, and the potential impact of a radioactive-waste storage site are difficult matters to present in simple terms. Newspapers are an important source of information on these topics, but adults with low literacy skills are less likely to read a newspaper. Only 35 percent of people who scored at NALS Level 1 reported reading a newspaper every day, while almost 60 percent of those who scored at NALS Level 5 reported reading a newspaper every day.

Though basic skills play an important part in keeping citizens informed and involved, the role of these skills in keeping policymakers informed through public opinion polls is just as important. Surveys designed to measure public opinion can be written at a simple reading level, but that reading level may be inappropriate for presenting the true complexity of modern social and political issues. Furthermore,

many adults with low reading skills may not engage questions critically and might offer acceptable or correct-sounding answers instead.

The United States and its many communities need the help and commitment of all their citizens. A lack of basic skills that narrows an individual's range of opportunities for social participation and reduces the likelihood of a good income can lead to frustration and anger. People with a high level of basic skills are more likely to develop the future-oriented perspectives that help them invest in constructive activities that can support improvements in social and political systems (Behrman & Stacey, 1997). All citizens should be prepared with the basic skills they need to participate fully in the social and political life of their country.

How are Services Provided to Adults?

In 1998, the Workforce Investment Act (WIA) consolidated more than 50 employment, training, and literacy programs into three block grants to states to be used for adult education and family literacy, disadvantaged youth, and adult employment and training services (National Institute for Literacy Policy Update, 1998). In addition to its specific authorization of adult education services, WIA encourages the coordination of efforts across employment, training, and adult basic education programs. This coordination is expected to be fostered by "one-stop" centers, local agencies within each state through which adults can gain access to an array of job training, education, and employment services. WIA's focus on preparing people for employment and on family literacy does not necessarily diminish the importance of services geared toward adults pursuing their education for other purposes, such as citizenship or personal improvement.

The basic skills component of WIA is funded through federal and state funds and administered by state agencies, which fund programs that provide services. Some programs follow a classroom format, some use one-on-one tutoring, and some combine the two approaches to instruction. Many large programs are able to offer classes at different skill levels, while smaller programs can only offer a few classes that must accommodate a group of students who have a range of abilities. Programs offer classes that range from a few to 20 hours per week. Some programs run in closed cycles of a few months to a year, while others have ongoing classes with open-entry admission that fills the seats of students who drop out. Class sizes vary from small to large. Classes are held in a variety of venues, including community centers, social service agencies, workplaces, libraries, prisons, community colleges, churches, and schools. Most of these programs provide classes in basic skills, English language, and high school equivalence.

The first level of basic skills instruction is provided to students with very poor reading skills, often described as below the fifth-grade level, equivalent to NALS Level 1. Adults at this level may have a learning disability that hinders their learning to decode the sounds of a word with the ease needed to read effectively. This requires a teacher who is well trained and a student who has the motivation and time to work on very basic reading skills. These adults usually need instruction in basic math as well.

The second level of basic skills instruction is provided to students who do not have severe learning disabilities and who do not have significant problems with decoding. Adults at this level read at between fifth- and eighth-grade levels, equivalent to NALS Level 2. Usually, people at this level also score low on tests of oral vocabulary and background knowledge. This situation requires students to engage in a good deal of practice in reading, writing, and math. These students should be learning to read more, read many different kinds of materials, and read more challenging materials than they have been accustomed to reading. Though the same advice on practice is true for writing and math, people at this level also need instruction on how to improve their writing and math.

English language instruction is usually provided at beginning, intermediate, and advanced levels, though some programs have more than three levels of instruction. These levels are assessed by tests that measure Student Performance Levels (SPL), which range from 0 to 10. Beginning classes usually serve adults who are in the range of SPL 0 to 4. Intermediate classes usually serve adults who are in the range of SPL 5 to 6, and advanced classes usually serve adults who are in the range of SPL 7 to 10. This instruction begins with oral language development but eventually includes literacy and math in English as well.

The GED—a set of five tests that measure writing skills, social studies, science, interpretation of literature and the arts, and math—is the most common alternative way to earn a high school credential. To pass, an adult must achieve a minimum total score and a minimum score on each of the five tests. A newly revised version of the tests is due for release in 2002. Among the changes being made are a more explicit emphasis on cross-disciplinary skills, such as information processing, problem solving, and communication. The mathematics section will demonstrate a greater emphasis on data analysis, statistics, and probability.

How Many Adults are Receiving Basic Skills Services in WIA-Supported Programs?

Statistics on adults who attend English, basic skills, and GED classes funded by the federal Workforce Investment Act are presented in ways that make it difficult to estimate the number of people in each challenge group who are being served. According to data for FY 1998 posted on the Department of Education's Web site,[10] approximately two million adults received English language services, and 800,000 were provided with services that prepared them to take the GED or gain a high school equivalence in some other way. An additional 1,300,000 adults were provided with basic skills services. Although most of these adults probably fall into the educational challenge category, no definitive estimation can be made because assessment practices are neither uniform nor linked to the NALS scale. Most likely, only a small percentage of the adults who face the new literacy challenge were served by this system.

The data from the 1992 NALS used in this study to estimate the size of the three challenge groups contain self-reported information about past participation in adult education programs to improve reading, writing, math, or English language skills. Among the population with the language challenge, 46.8 percent reported taking a basic skills or English language course outside of a K–12 school program. Despite this high percentage, they likely have not yet received as much assistance or taken as many courses as they need, given that they still face a language challenge. A relatively small fraction of those in the educational credential challenge and the new literacy challenge categories report ever participating in adult programs to help improve their basic skills. Only 11.3 percent of those in the educational credential challenge group and 13.3 percent of those in the new literacy challenge group report participation in such programs.

[10] http://www.ed.gov/offices/OVAE/98enrlbp.html

What Should be Done to Expand and Improve Services?

In 2000, policymakers, practitioners, scholars, and adult students met in Washington, DC, in a national literacy summit. The discussions that took place during the summit and in forums around the country afterward were summarized in *From the Margins to the Mainstream: An Action Agenda for Literacy.*[11] This action agenda provides a blueprint for expanding and improving adult education services and sets the following goal:

> "By 2010, a system of high quality adult literacy, language, and lifelong learning services will help adults in every community make measurable gains toward achieving their goals as family members, workers, citizens, and lifelong learners."

The action agenda sets three priorities. The first is to increase resources by both changing existing policies to support higher quality programs and expanding federal, state, and private funding. The second is to increase access by providing better outreach to potential students, necessary support services to make it possible for them to study, and more convenient ways to learn, including the use of technology. The third is to improve instruction by developing standards, training staff, and expanding research and development efforts. *From the Margins to the Mainstream* provides a general blueprint for expanding and improving services.

The *New Skills for a New Economy* study found that many adults who are part of the language challenge group demonstrate their motivation by coming to programs in large numbers and persisting in their studies. It also found that the programs that serve them do a good job in improving their speaking, reading, writing, and math proficiencies. Further progress is clearly desirable, however, given the modest gains achieved by most participants. At present, the adult education and literacy system is serving less than 20 percent of the potential student population. Expansion and improvement of these services should be a priority.

The *New Skills for a New Economy* study found that adults who are part of the educational credential challenge group demonstrate their motivation by coming to programs in large numbers. Adults in this category who have basic literacy and math skills generally do not persist as long as adults who are learning English. Most are preparing for the GED test, and once they feel prepared, they leave class and take the test. The *New Skills for a New Economy* study found that many of these students are successful in meeting their goal. The adult education and literacy

[11] Available at www.nifl.gov

system, however, is serving less than 10 percent of potential students. Expansion and improvement of these services should be a priority as well.

The *New Skills for a New Economy* study found that adults who are part of the new literacy challenge category are not coming to programs in large numbers, and those who come generally do not persist in their studies. Workplace education programs seem to be providing effective services to this population (though evidence is weak), but they serve very few adults. Only a very small percentage of potential students in this category are now being served. States may need a new approach to serving this population.

The hardest to serve are adults who have NALS Level 1 skills and immigrants who need to learn English but who do not have strong literacy skills in their own language. A few programs around the country are doing a good job serving these populations, but most programs are not equipped to provide effective services to adults who fall into these two populations. More research is needed to identify and describe more effective ways to serve these students.

How to Start Leveling the Playing Field

The United States currently has a national system and 50 state systems addressing the language and educational credential challenges. *From the Margins to the Mainstream* provides a blueprint for expanding and improving these systems. The current administration and the U.S. Congress should use this blueprint as a framework for investing in the adult education and literacy system. The governors and legislatures in all 50 states should do the same. Although adult educators know a lot about serving adults facing the language and educational credential challenges, they need to engage in a greater effort to improve services. The field also needs research and development efforts that will identify the programs that effectively address the new literacy challenge as well as the needs of adults who are in NALS Level 1 or lack literacy skills in their own language. This research should be used to develop and test effective program models.

Eventually, the adult education and literacy system should be part of a national lifelong learning system that includes job-skill training programs and preparation to enter postsecondary education. To succeed in the 21st century, all workers need strong English language skills, NALS Level 3 literacy and math skills, and postsecondary education or vocational training. This lifelong learning system should not be seen as another social program with few economic benefits; it is an economic development program that should provide a favorable return on the investment. It will also have a positive social impact, as the skills needed to succeed

in the new economy are the same skills parents need to help their children succeed in school and citizens need to play an active role in their communities.

Without an investment in the language proficiency, education, and basic skills of adults now, this nation will have two very different populations: one with an education sufficient to do well in the new economy, help their children succeed in school, and play a leadership role in their communities, and the other whose lack of language proficiency, education, or basic skills leaves them and their families beyond the reach of opportunity and on the margins of civic and social life. This is unacceptable. Instead, there must be a firm commitment to expand and improve the adult education and literacy system that fills the gaps left by the K–12 and higher education systems. Once all children and adults have access to the education and opportunities they need, the nation will be well on its way to a level playing field.

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